

CLAIMS

What is claimed is:

1. A spinal catheter assembly having an outside diameter sized so that withdrawal of the spinal catheter assembly from dura mater of a spine, subsequent to insertion of said assembly therethrough, permits the dura mater substantially to reseal a space formerly occupied by the assembly, said spinal catheter assembly comprising:

a support needle having a first end defining a non-cutting piercing point, said support needle further comprising a hollow bore with an opening proximate said first end allowing access to said bore; and

a spinal catheter slidably mounted on a portion of said support needle such that said first end of said support needle protrudes from said spinal catheter exposing said non-cutting piercing point and said opening.

2. The spinal catheter assembly of claim 1, wherein said non-cutting piercing point comprises a pencil-point tip.

3. The spinal catheter assembly of claim 1, wherein said catheter assembly has a tip configured and arranged to provide a feedback signal to indicate dural puncture.

4. The spinal catheter assembly of claim 1 wherein
a rear end of said support needle carries a support hub having a first attach structure; and
a proximal end of said catheter carries a catheter hub having a second attach structure
configured to removably attach to the first attach structure carried by said support hub.

5. The spinal catheter assembly of claim 4, wherein the first and second attach

structures comprise a LUER-LOCK® type connection.

6. The spinal catheter assembly of claim 4, wherein said catheter hub is configured for substantially unobtrusive attachment to a patient's skin by way of an intermediary adhesive element.

7. The spinal catheter assembly of claim 4, wherein said catheter hub is configured for attachment to medical fluid transfer equipment by an attachment structure to form a connection generally perpendicular to a direction of catheter insertion.

8. The spinal catheter assembly of claim 1 wherein
a rear end of said support needle carries a support hub; and
a proximal end of said catheter carries a catheter hub having a detach structure configured
to detach the catheter hub from the support hub.

9. The spinal catheter assembly of claim 1 wherein
a proximal end of said catheter carries a catheter hub; and
a rear end of said support needle carries a support hub having a detach structure
configured to detach the catheter hub from the support hub.

10. The spinal catheter assembly of claim 1, wherein said catheter comprises a conduit formed from a first material and radially reinforced at a distal end by a second material.

11. The spinal catheter assembly of claim 10, wherein said second material is selected from the group comprising a stainless steel wire and a ribbon spring.

12. The spinal catheter assembly of claim 1, wherein said catheter comprises a force absorbing structure to prevent kinking when the catheter is bent.

13. The spinal catheter assembly of claim 12, wherein said force absorbing structure comprises a ribbon spring.

14. The spinal catheter assembly of claim 12, wherein said force absorbing structure comprises a kink sleeve disposed on a portion thereof.

15. The spinal catheter assembly of claim 1, further comprising a central stylet slidably mounted in said support needle to prevent the entry of matter through said opening proximate said first end.

16. A catheter assembly for inserting a distal end of a spinal catheter through dura mater into the spine of a patient, said catheter assembly comprising:

a support needle having a proximal end and a non-cutting piercing point at a distal end,
said support needle configured to resist relative motion between said distal end of
said catheter and said non-cutting piercing point during insertion of said catheter
assembly into a patient; wherein
said catheter is carried exterior to said support needle to expose said non-cutting piercing
point when positioned for said inserting.

17. The catheter assembly of claim 16, wherein said catheter has an exterior diameter such that withdrawal of said catheter from said dura mater, subsequent to insertion of the catheter assembly therethrough, permits said dura mater substantially to reseal a space formerly occupied by said catheter.

18. The catheter assembly of claim 17, wherein
said proximal end of said support needle carries a support hub having a first attach
structure;
a proximal end of said catheter carries a catheter hub having a second attach structure

configured to interface in removable interference with said first structure carried by said support hub.

19. The catheter assembly of claim 16, wherein said catheter further comprises a radially reinforcing material located at said catheter distal end, said reinforcing material resisting peel-back of said catheter from said support needle.

20. The catheter assembly of claim 16, having a distal end of said assembly being constructed to provide a perceptible feedback signal when said distal end of said catheter penetrates said dura mater.

21. The catheter assembly of claim 16, characterized in said catheter hub further being configured for attachment to medical fluid transfer equipment having structure to form a LUER-LOCK® type connection.

22. The catheter assembly of claim 16, wherein said catheter hub is configured for attachment to medical fluid transfer equipment by an attachment structure to form a connection generally perpendicular to a direction of catheter insertion.

23. The catheter assembly of claim 16, wherein said catheter comprises a kink sleeve disposed on a portion thereof, said kink sleeve configured to prevent kinking of said catheter when said catheter is bent during use.

24. A method for installing a spinal catheter assembly, said method comprising:
providing a spinal catheter assembly having:

a support needle with a piercing point at a distal end, said support needle having a proximal end with a support hub and an opening to allow flow from a point near the distal end thereof to said proximal end;

a catheter, having a proximal end with a catheter hub, slidably mounted on said support needle to expose said piercing point, said catheter having an outside diameter sufficiently small so that withdrawal of said catheter from dura mater, subsequent to insertion of said catheter assembly therethrough, permits said dura mater substantially to reseal a space formerly occupied by said catheter; wherein said catheter hub and said support hub are configured to form a locking interference therebetween; and

a central stylet slidably mounted in said support needle to prevent the entry of matter through said opening;

using a conventional spinal needle technique to prepare skin of a patient at an injection site, apply local anesthetic, and insert a tip of said catheter assembly, said tip comprising said piercing point;

removing said central stylet subsequent to receiving a feedback signal that puncture of said dura mater has occurred;

checking for cerebrospinal fluid at said support hub;

if no cerebrospinal fluid is observed, replacing said central stylet and further inserting said assembly until said tip is within the intrathecal space;

once cerebro spinal is observed, unlocking said support hub and said catheter hub, and while holding said support needle stationary, advancing said catheter until said catheter hub contacts the skin;

removing said support needle and checking for the presence of CSF at said catheter hub;

connecting medical fluid transfer apparatus to said catheter hub; and

securing said catheter hub to the skin.

25. A spinal catheter comprising:

a catheter body comprising an elongated hollow tube, said catheter body configured to be slidably mounted on the exterior of a support needle;

a kink sleeve disposed on a portion of said catheter body, said kink sleeve configured to prevent

kinking of said catheter body, when said catheter body is bent during use.

26. A spinal catheter comprising:

a catheter body comprising an elongated hollow tube, said catheter body configured to be slidably mounted on the exterior of a support needle;

a catheter hub configured for attachment to medical fluid transfer equipment by an attachment structure to form a connection generally perpendicular to a longitudinal axis of said catheter body.